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AUTHOR Theobald, Robert
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ABSTRACT

If the educational system and its present directions require fundamental change, then the past system must be understood and the future assessed. The industrial era's mechanistic and hierarchical views do not match today's inter-related, subjective, risky world. To meet these challenges additional world factors and policy analyses must be analyzed and decisions made. The future requires diversity, learning ability, decision-making, creativity, and situation assessment. Education must be life-long, integrated into the community, individualized to match the learner, and controlled by the community. A linkage system, Future Frontiers, has been created to assist in the shift between the past industrial era and the new communications era, and attempts to maintain the quality of life under the impact of rapid growth. (LS)

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CREATING A DESIRABLE EDUCATIONAL SYSTEM

by

Robert Theobald

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Testimony Before the Subcommitte on Elementary, Secondary and Vocational Education of the House of Representatives, Committee of Education and Labor.

EMBARGOED TILL 9:30 A.M., April 25, 1979

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Robert Theobald P. O. Box 2240 Wickenburg, Arizona 85358 602/684-7861

The fundamental issues with which these hearings must cope are in my opinion:

1. Is the educational system functioning so badly and are the present directions so unsatisfactory that fundamental change is required?

2. If the answer to the first question is yes, as I believe it to be, what are the feasible and desirable changes?

3. Equally importantly, what are the ways in which information about these feasible and desirable changes can be made available to those directly involved with education as well as to the American people in general?

Having made my position clear from the very start, let me enlarge our current problems and possibilities in the testimony that follows. First, we must recognize that in order to discuss education effectively, we must share some understandings of the basic underlying purpose of education. Let me suggest to you that education, in its broadest sense, should act to prepare people to be successful in the world which will exist during their life-span.

The educational system we now possess was designed to prepare people to live in the industrial era. What then did the industrial era require? It needed a well-disciplined factory and office labor force who would stay on the job, obey orders, and be as efficient as possible. Society needed people who believed that hierarchical systems were the ways to get things done: orders were therefore obeyed without question. We also developed a situation where people would always have unsatisfied desires for goods and services so that they would not continuously quit their jobs as they gained "enough" money as was the pattern in the nineteenth century.

In order to minimize misunderstanding, let me make it clear that I am not arguing whether the directions of the industrial era were good or bad. I am stating that the childrens' attitudes in the twentieth century are obviously very different from those which developed in the nineteenth. The question which we must examine today and tomorrow in these hearings is whether this industrial-era set of attitudes is appropriate to the new set of conditions which are now developing in the United States.

Before going on to this subject we must recognize that, as might be expected, the school was organized to function along the same lines as the rest of the industrial-era system. The teacher was the equivalent of the "boss" in the office and the factory: the teacher both knew what needed to be known and was

responsible for maintaining order. Thus the student, during his school-years, learned not only the basics which were essential for efficient work in the industrial era but also absorbed the styles of behavior which would stand him or her in good stead as he or she entered the labor force.

What then was the basic epistemology which lay behind industrial-era thinking? It was believed that it was possible to understand the universe completely - that the universe worked according to comprehensible and learnable laws. A favorite image of the nineteenth century of the working of the universe was that of a clock wound up by God: human beings might eventually learn to some extent to understand the way in which the clock worked but they would never be wise enough to tamper with its operations.

Given the belief that people were unable to learn enough to understand the universe, the obvious step to deal with the excessive complexity of the universe was to divide knowledge into smaller and smaller parts. Thus, we started with the major disciplines such as physics, chemistry, economics, law, medicine etc. Then we split into sub-disciplines and sub-sub-disciplines until the specialist in one area was totally unable to understand another specialist, even in the same area of knowledge. This process of fragmentation still continues and is now widely held to be the cause of many of our problems.

As a response to this situation, it is now widely agreed that we should reintegrate knowledge into more usable forms. But the efforts toward this goal which have been tried have all too often been unsuccessful. "Interdisciplinary" has seldom meant a well-understood body of knowledge which can be taught in fundamentally new ways - rather it has meant that specialists in different areas continue to state their limited visions within the confines of a single course.

The hard fact is that we have entered a different world based on a fundamentally different philosophy and epistemology. This inevitably requires both the teaching of new bodies of knowledge and also the teaching of these different bodies of knowledge in new ways. Instead of the belief that the world is a clock wound up by God, we now see the world as an extraordinarily complex organism where the actions of any part of the organism affect the behavior of other parts of the organism, and in rare cases the total organism.

This overall pattern of understanding has not yet been incorporated into our decision-making patterns nor into the educational process which we use to inform people about the society. It may therefore be important to look at the three strands which form this overall pattern:

-- First, the understanding that everything is connected to everything else. One can neither effectively study a subject nor act creatively without recognizing that all actions have consequences, and that these consequences continue to reverberate through the socioeconomic system for indefinite periods of time. All too often the secondary and tertiary effects of decision-making may contradict and annul the first intentions. Or to put it another way, there are very few points at which a decision will really change the direction of a society - many action patterns fail to be effective over time because the desired change cannot be achieved in the particular way that is tried.

-- Second, there is no such thing as objective analysis or action. We are all biased. Our biases emerge from our experience and different people will see the same situation differently. It is hopeless to strive toward an absolutely "correct" answer for nobody is going to be willing to admit that their "truth" is wrong. It may, however, be possible to approach the truth on a gradual basis as people listen to others and learn new perceptions and ideas which they had previously ignored or not perceived at all.

-- Third, all action is risky. There are no certainties in life. One must always balance probabilities. Thus there is no absolutely "right" or "wrong" set of actions -- people with different personalities and styles of thinking will want to accept different levels of risk and challenge. Thus, for example, if an individual chooses a direction where the chance of success is only 60% and has high gains, as compared to a project with a 90% chance of success, but far lower gains, it is unrealistic to blame him or her for incorrect perceptions if the direction eventually is unsuccessful because there was an accepted 40% chance of failure. Similarly, a person should not blame him or herself under these conditions.

If the world is interconnected, if objectivity is impossible and if risk is inevitable, we clearly need to teach people both new patterns of thought and also we need to teach them these new patterns of thought in new ways. This is the fundamental challenge which confronts education at all levels. It is not enough to make small modifications within current patterns. It is the overall patterns themselves which are making it impossible for us to provide children, and indeed adults, with the conceptual skills they need to deal with the patterns of events which surround them in today's world.

Thus, for example, we find the complexity of events continuing to increase. Most people find themselves hopelessly confused by the pace and pattern of events in the world today. They will continue to be unable to make sense of their world so long as they try to analyze it within the industrial era models which they have been taught which require that events be predictable, understandable, and uni-dimensional. We have to learn to operate with a far greater tolerance of ambiguity than has ever been the case in the past.

Before I continue with this presentation, let me remind you of some other "driving forces" which seem likely to change the world in which we all live. By "driving forces" I mean critical factors which are affecting our universe and are not likely to be significantly impacted by policy decisions over the next two decades. I shall refer to these briefly to prevent my testimony from having excessive length.

The first factor results from the overall changes in the international situation. It is obvious that the stress on the poor countries of the world has not yet reached its peak and that the relationships between the rich and the poor countries of the world must be expected to continue to worsen. The consequences will show up most obviously for the United States in the growing tensions along the Mexican American border.

PAST AMERICAN POPULATION CHANGES The "bulge in the snake" phenomenon is only now beginning to get the attention it deserves. Few people understand how this will continue to disrupt the overall structure of the United States over the next fifty years.

MIGRATION FACTORS The migration from north to south is now well established and will almost certainly continue for most of the remainder of the century. The shift from urban to rural areas is only now taking hold and will, given people's desire to escape the cities, be very difficult to manage.

LAND, AIR, WATER CONSTRAINTS Even though the environmental consciousness which grew up in the nineteen-sixties, and burgeoned in the early nineteen-seventies, is now under increasing attack the realities of the situation prevent any real cut-backs in commitments. Our environmental problems are sufficiently serious that they can threaten the health and long-run safety of the population.

ENERGY/RESOURCE AVAILABILITY While it may be possible to obtain enough resources for a long time into the future, costs will be far higher. This different pattern of costs will force significant infrastructure shifts: it may be impossible to maintain all of the present capital stock. To take one example, the road and bridge situation is becoming critical in many parts of the country.

CLIMATE As you know, there is much disagreement among meteorologists about this issue. We have found no clear-cut evidence of heating or cooling trends although the dangers of both are obviously present. But we have discovered that the climate of most of the twentieth century has almost certainly been unusually benign and stable.

TELECOMMUNICATIONS The decision about the level of technology to be expected in the future is to a considerable extent a cultural one. There appears to be one exception to this. The technology of telecommunications will continue to develop because there is no real opposition to it at the present time although different groups hope that it will be used for different purposes. Telecommunications is the next "revolutionary" force to be followed almost certainly by "genetics."

What then are some pragmatics which we should be looking at in terms of decision-making and policy directions. Before I start on this area, I feel that I should remind you that there are people who disagree with me and with the model which I present here! Let me remind you of the sources of some of these disagreements but leave others who hold these views to state why they reach their conclusions.

First, there are analysts who remain completely unconvinced by the arguments about the effects of rapid change. They argue that if we would only go back to earlier values and styles our problems would vanish. It would appear that such an approach finds answers to our present problems in our past experience.

Second, there are analysts who are convinced that American and the world society have passed beyond the point of no return. Their argument, essentially, is that we are now in free fall having gone over a cliff and that we are very much in the position of the man who jumped off the top of the Empire State

Building and was asked as he was passing the fifth floor: "How are you doing" replied "Fine, up to now, thank-you." Those people who see the world in this way would like the schools to teach survival skills for a far harsher world than we now inhabit.

Third, there are those people who argue that the solutions to our present problems could be found in a recommitment to high technologies and consequent high levels of economic growth. They argue that the schools should teach far more people to think, invent and imagine scientific and technological solutions to our present energy and resource problems. They see no real problems in continuing and indeed enhancing the growth trajectory of the world if we regain our nerve.

Finally, there are people who believe that a collapse can be avoided but only if we commit ourselves to radical shifts in our values and living patterns which would cause us to "live lightly" on this planet. They believe that it is critically important to teach people that they cannot expect the continuous rise in the "standards of living" that have taken place throughout the industrial era. They argue that there are other satisfactions which we have lost in our rush for growth and claim that we should return to these other possibilities.

Obviously, each of these schools of thought will disagree with the views I have advanced here - they will also disagree with each other. The members of this subcommittee must - if they are to be effective in their task of thinking about the future of education - decide which of these visions of the future is most likely to be accurate for they can only make effective policy-decisions after effective joint understandings on this level have been made. If this level of analysis is not addressed we shall continue to see confusion and frustration in the field of educational policy-making.

(I am tempted at this point to move off into a digression. A few months ago I was invited by the Department of Agriculture to speak about the future of renewable natural resources. I chose to concentrate in my speech on "Why effective decision-making is today impossible." Rather to my surprise, this theme was taken up as a major one by the conference: many people came to concentrate on the failure of our management systems as the key issue in dealing with current problems and possibilities. I would be delighted to share this material with you for the record if you would be interested.)

At this point let me move to the core of my speech. What are the primary skills that we need to teach if we are to be able to live in the society that we have ourselves created in past years.

Let me suggest the following five needs. I do not believe that these can be listed in order of importance for they are all required if we are to be able to prepare people to live successfully in what I choose to call the communications era. We must:

a) help people gain the skills which will enable them to live happily and creatively with others in their communities. We must recognize that for this to be possible we shall need to create a far greater diversity of

communities than presently exist in America and make it easier for people, as they grow and change, to move from community to community where their skills can be more effectively used.

b) help people to be aware of their strengths and their weaknesses and provide them with the information and knowledge which will enable them to chart a life-course which will be satisfactory to them and supportive of the communities in which they choose to live. It is in this context that the idea of learning to learn - rather than learning a subject once and for all - is critical.

c) teach people the ability to look at a defined situation and to make good decisions about the best ways to deal with that situation, while being aware of the interconnections with other areas of their lives and those of others as well as the patterns of risk involved in any decision-making.

d) teach people the ability to look at a situation and to come up with imaginative and creative ideas about the ways in which that situation can be changed, for the better, so that all those involved in it have more chances of meeting their purposes and their goals.

e) teach people the ability to distinguish between situations where it is wise to work within current realities and those which can only be resolved on the basis of creative thinking and significant change.

What implications does this have for present patterns of education? Many of the following ideas have been around for many years but they have not affected significantly the momentum of the educational establishment. It is my hope that the meaning of these ideas will emerge far more clearly in the context that I have set out for you this morning.

1. Education must be life-long: people must have the chance to continue to learn so long as they are alive. In a risky, uncertain, interconnected world one can only survive if one continues to learn.

This goal is a common one and we have, of course, made some progress toward it. But we have not understood its full implications for primary, secondary and vocational education. The relatively rigid age grading that exists in the schools does not recognize the reality that each person may need to learn different subjects at different ages.

The sooner we enable people of very different ages to learn together, the sooner we shall be able to begin to diminish some of the pathologies which have emerged from confining young people largely to talking to people in their own age group. Why are we unwilling to mix young, middle-aged and old people in the same learning situation? The answers are to be found in our vision of education as a carefully orchestrated progression of learning which makes a child ready for the world of work and able to stay in it for the rest of his or her life. This model is not suitable for the world that I have described early in this speech.

2. Education must cease to be largely confined to the school-room and must once again emerge from it and be integrated with life.

Marshall McLuhan made the point a number of years ago. He tells of the two kindergarten kids walking down the street and identifying the planes as they fly overhead. When they come to the school-room door, one of them turns to the other and says: "Let's go in and string those darn beads." I believe that we all need to ask ourselves how much of the present educational system consists in stringing "darn beads."

We have come to a point in which most schools are "reality poor" as compared to the outside environment and television. People all too often endure school because they must. In the central cities, schools are frequently the highest crime areas and sending our children to them is equivalent to indoctrinating them into a criminal life style.

The present school system really grew like Topsy. We never have considered in depth the implications of the present situation, primarily within classrooms, where people are educated to earn a living for as much as twenty years. We need to rethink how much of a person's educational life should be spent in a classroom and how much should be spent in dealing with real-life situations.

3. We need to recognize that, apart from a relatively limited core set of needs, different people need to be able to benefit from different educational experiences if they are to be able to develop their strengths and minimize their weaknesses. The fundamental problem with much competency-based education today is that it tends to assume that all skills need to be achieved by all students. The result of this situation may be to force a child to learn subject areas where they may never be competent rather than permitting them to develop their understandings and skills in those areas where they might become exceptional thinkers.

There is an assumption built deep into our educational system - that the average student wants to do as little work as he or she can. If this is true, it follows that the only way that the educational system can be successful is to force learning on students. There is considerable evidence that this viewpoint is incorrect. First, we know that students who are effectively challenged by teachers tend to do very well in their studies. Second, there is evidence that students who are given a chance to state their needs are very often highly aware of them.

The pshychology of the present educational system has deep roots in the puritan ethic. We have not rethought it in the light of our new psychological learnings which show that people are capable of rising to challenges when they are given an opportunity to do so.

4. There is a need for more effective community control of the educational system. We use this rhetoric frequently but the harsh reality is that the average local school board does not have enough up-to-date information to be able to make good decisions.

If the rhetoric about local control is to become real, we must take two steps. First, we must improve the access of the interested local school board to imaginative and creative thinkers in the field of education. Second, we must find ways in which people in the community can more effectively communicate their

feelings about appropriate styles of education to the teaching and administrative staff of the local educational bodies. I shall conclude my testimony with brief statements about activities with which I am associated in each of these two areas.

Linkage

Two of us who are giving testimony before you are members of a Linkage System which aims to interconnect people who are convinced that we are now living in a "transformational" period similar to the change which took place between the agricultural and the industrial era. There is, however, one critical difference: this present shift between the industrial and the communications era is taking place in one generation rather than over a lengthy period of generations.

The linkage system is open to those who share the following assumptions:

-- We have reached the point where present styles and trends must be changed rapidly but in an evolutionary way.

-- We should concentrate on positive and creative action ourselves and help others to find areas where they too can be effective.

-- If we are to bring about desirable patterns of change we shall have to alter both our personal values and the institution's which were formed in the industrial era.

-- We are all booby-trapped by our own past patterns and we are most dangerous when we are most certain of what we are doing.

These intellectual statements lead to the new understandings of minimal requirements for functioning systems: we must recreate love/trust relationships and learn to enjoy the company of those we are working with win-win styles. Thus, we require the possibility of two-way ~~living~~ learning with no person dominating the relationship.

There are a significant number of educators involved in this linkage system and we are hopeful that as we work together we shall be able to clarify the implications of the viewpoints set out in this testimony in coming months and years. For example, the Southeast Regional Consortium, which is led by the chief state school officers of the various States, is just completing a proposal to the National Institute of Education which will suggest activities based on perceptions similar to those contained in this testimony. Let me repeat, once again, that Linkage results from some fundamental beliefs about the nature of the world in which we live. This set of beliefs is significantly different from those within which Congress presently functions. If you do share some of the ideas that I have advanced in my testimony, you would need to rethink not only the proposals you have been making for education in the past but also the information-patterns and the decision-making styles that are now normally employed in the Congressional decision-making process.

Future Frontiers activities

We have recently created in an area Northwest of Phoenix, Arizona a new non-profit educational corporation called Future Frontiers. Its object is to maintain the quality of life under the impact of rapid growth, and the possible development of a uranium mine.

Just prior to writing this testimony, conversations took place with the President of Rio Salado Community College, a new style of community college without walls, about the ways in which the six communities within the Future Frontiers area and Rio Salado could collaborate. We have decided that it should be possible to set up a situation in which the community defines what it wants done and the community college then informs us how these needs can be met. We intend to act in coming months and years to achieve this result.

We shall do this in the context of a rapidly evolving technological situation. The possibilities for the rural areas using teleconferencing, video recorders, video disks and a whole group of other potentials have hardly been perceived, let alone examined. We are committed to working with private enterprise, State and Federal agencies to explore the opportunities that are opening up before us.

It is our mutual agreement that the present situation where the teacher and the administrator make decisions for the community is no longer tolerable. It is unacceptable because it will be impossible to excite the community about creating its own future until it is able to have a real voice in deciding directions. And in today's conditions, it is absolutely essential that the process of learning and action be tied together because action without learning will almost certainly lead to undesirable results and learning without action is useless.

As you listen to those who come to testify before you in these two days I hope that you will continue to remember the fundamental choices you make by your action or inaction. There are various visions of the future world - the Congressional choices you make in the ways that you allocate resources will help to determine which one of them comes into existence. If you in this subcommittee, and the rest of us in America and the world, should choose wrong the costs will be exceedingly high.

I have stated my views, as clearly as I can because I believe that this is the obligation of each one of us at this time. But I should like to close by stressing one critical implication of my views.

We need to continue to listen to each other and to try to perceive the grain of truth in the other's position while they listen to us for the same reason. Our situation will only become irreversibly catastrophic if levels of trust decline to such a point that we no longer are prepared to believe that others are speaking and acting in good faith. As we all know, from looking at the polls, we are perilously close to this situation at the present time. But it is my belief that the present drifts can be reversed if we should all commit ourselves to this task.

I have chosen to take the time to prepare this testimony because I believe we face a critical moment in history. I hope that there are people in Congress who will act effectively to meet it.